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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,438	10/14/2005	Samuel Marlin	0543-1015	1418
<div>466 7590 10/31/2007</div> <div>YOUNG &amp; THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202</div> <div>EXAMINER WIESE, NOAH S</div> <div>ART UNIT 4116 PAPER NUMBER</div> <div>MAIL DATE 10/31/2007 DELIVERY MODE PAPER</div>				

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/553,438

**Applicant(s)**

MARLIN, SAMUEL

**Examiner**

Noah S. Wiese

**Art Unit**

4116

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 13-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/14/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election Acknowledged***

1. Applicant's election of claims 1-12 with traverse is noted. However, the argument that the newly amended claims now constitute a contribution over the prior art, and thus satisfy the conditions for unity of invention, are unpersuasive. As stated in the previous action, and below in this action, it is the position of the examiner that the teachings of Nikitina et al anticipate the limitations of claim 1, even with the newly added material. Therefore, the requirement for restriction is held and made FINAL. The claims 1-12 will be examined on merits.

### ***Status of Application***

2. The claims 1-22 are pending and presented for the examination. Claims 6 and 7 are canceled. Claims 1-12 have been elected with traverse. Claims 13-22 are withdrawn from consideration on merits.

### ***Priority***

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. FR-03/04820.

### ***Information Disclosure Statement (IDS)***

4. The information disclosure statements (IDS) were submitted on 10/14/2005, 01/17/2006, and 05/18/2007. The submissions are in compliance with the provisions of

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37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner. Please refer to applicant's copy of the 1449 herewith.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim uses an older European standard to claim a limitation in grain size of the crystals. This is improper because standards such as FEPA 42-GB-1984 can be changed and thus do not unambiguously define the metes and bounds of a claim. Additionally, standards are regularly updated, making older standards such as that of claim 1 out-of-date and difficult to reference. Such is the case in instant application. A proper way of defining the grit size of the crystals would be through grain size given in microns, as is done in claims 10-12.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-5, 8-9, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Nikitina et al (US 4906255).

**Claims 1-5 and 8** are drawn to a composition of fused ceramic grains having a high alumina content and having magnesia as the second main component. The claims also recite minimum silica and other impurity contents, as well as a maximum grit number.

Nikitina et al is drawn to an abrasive material comprising corundum crystals surrounded by an additive that can be spinel (see Abstract). An example is taught wherein corundum crystals are surrounded by spinel in the amount of 8-10 wt% spinel (see page 5, Table 1, composition 10). Using the chemical formulas  $\text{Al}_2\text{O}_3$  for corundum and  $\text{MgO} \cdot \text{Al}_2\text{O}_3$  for spinel, this is equivalent to 2.27-2.83 wt% MgO, with the balance being  $\text{Al}_2\text{O}_3$ . This range of compositions anticipates the compositions of claims 1-5. No minimum silica content is taught by Nikitina et al. However, neither is the inclusion of silica or any other component besides alumina and magnesia taught. It was known in the art at the time the invention was filed that keeping silica and other impurities to a minimum is beneficial to abrasives. This is stated by applicant (see Specification, page 4, lines 20-26). Therefore, one of ordinary skill in the art would have known to keep impurities to a minimum, and the lack of explicit impurities limits in Nikitina et al does not preclude anticipation.

The grain size limitation of claim 1 is drawn to an older European standard that is not available to the examiner. However, the FEPA website has been used to obtain what is thought to be an equivalent grit size according to a more current standard. This grit size is P50, from the "FEPA-standard 43-1:2006: Grains of fused aluminum oxide, silicon carbide and other abrasive materials for coated abrasives". The grit size P50 is

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equivalent to a mean grain size of 336  $\mu\text{m}$ . The grain sizes of the corundum and spinel composition taught by Nikitina et al are given as 240-300  $\mu\text{m}$  (see page 5, Table 1, composition 10). Since this clearly falls below the grit size that is thought to be equivalent to that claimed by applicant, this limitation is anticipated by Nikitina et al.

**Claim 9** further limits claim 1 by stating that the grains are corundum crystals surrounded by nonstoichiometric  $\text{MgO-Al}_2\text{O}_3$  spinel phase.

As discussed above, Nikitina et al teaches that that crystals are corundum crystals surrounded by spinel phase. However, Nikitina et al is silent to the stoichiometry or nonstoichiometry of the spinel phase. However, it is the position of the examiner that the spinel in the material taught by Nikitina et al would inherently be at least partially nonstoichiometric, because the stoichiometry or nonstoichiometry of the spinel phase is a function of the processing conditions of the  $\text{MgO}$  and  $\text{Al}_2\text{O}_3$  raw materials. Nikitina et al teaches substantially the same processing steps as instant application. Therefore, it would be expected that the resulting structure, and thus nonstoichiometry, would be the same. Nikitina et al teaches that the material is produced by arc melting corundum with the addition of  $\text{MgO}$  (see column 4, lines 28-34). The instant application claims the method of arc melting a composition containing corundum and  $\text{MgO}$ . These are equivalent processes, and thus the spinel phase produced would be equivalent, in oxide composition and in stoichiometry. Therefore, the further limitation of claim 9 is met, and the claim is anticipated by Nikitina et al.

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**Claim 12** further limits claim 9 by stating that 100% of the corundum crystals have a size greater than 5  $\mu\text{m}$ .

Nikitina et al teaches that the corundum crystals are from 5-350  $\mu\text{m}$  in size (see Abstract). Additionally, the corundum crystal sizes of the material given in Table 1, composition 10 (discussed above) is from 240-300  $\mu\text{m}$ . Both of these teachings indicate that 100% of the crystals would have a size above 5  $\mu\text{m}$ .

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nikitina et al (US 4906255).

**Claim 10** further limits claim 9 by stating that the mean size of the corundum crystals is 18-20  $\mu\text{m}$ .

**Claim 11** further limits claim 9 by stating that 90% of the corundum crystals have a size between 9  $\mu\text{m}$  and 27  $\mu\text{m}$ .

As discussed above, Nikitina et al teaches an example whose compositions anticipate those of the instant application. The crystal sizes given with the example are higher than those of claims 10 and 11. However, Nikitina et al also teaches a broad range of corundum crystal sizes from 5 to 350  $\mu\text{m}$  (see Abstract). It would have been obvious to one of ordinary skill in the art, through ordinary experimentation and optimization, to arrive at a material with the composition taught in the example and the smaller crystal sizes taught elsewhere in the document.

### ***Conclusion***

12. No claim is allowed.
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Noah S. Wiese whose telephone number is 571-270-3596. The examiner can normally be reached on Monday-Friday, 7:30am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should



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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Noah Wiese  
October 24<sup>th</sup>, 2007  
AU 4116

VICKIE Y. KIM  
SUPERVISORY PATENT EXAMINER



Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :10/14/2005; 1/17/2006; 5/18/2007.